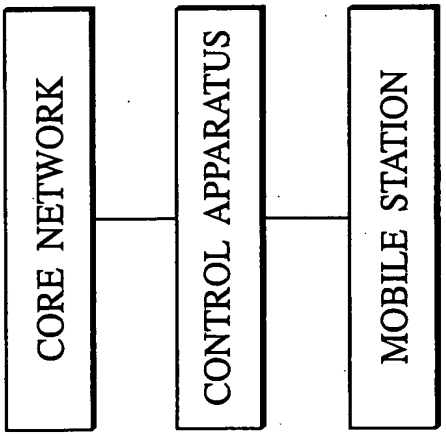

CORE NETWORK
CONTROL APPARATUS
MOBILE STATION

FIG.1A

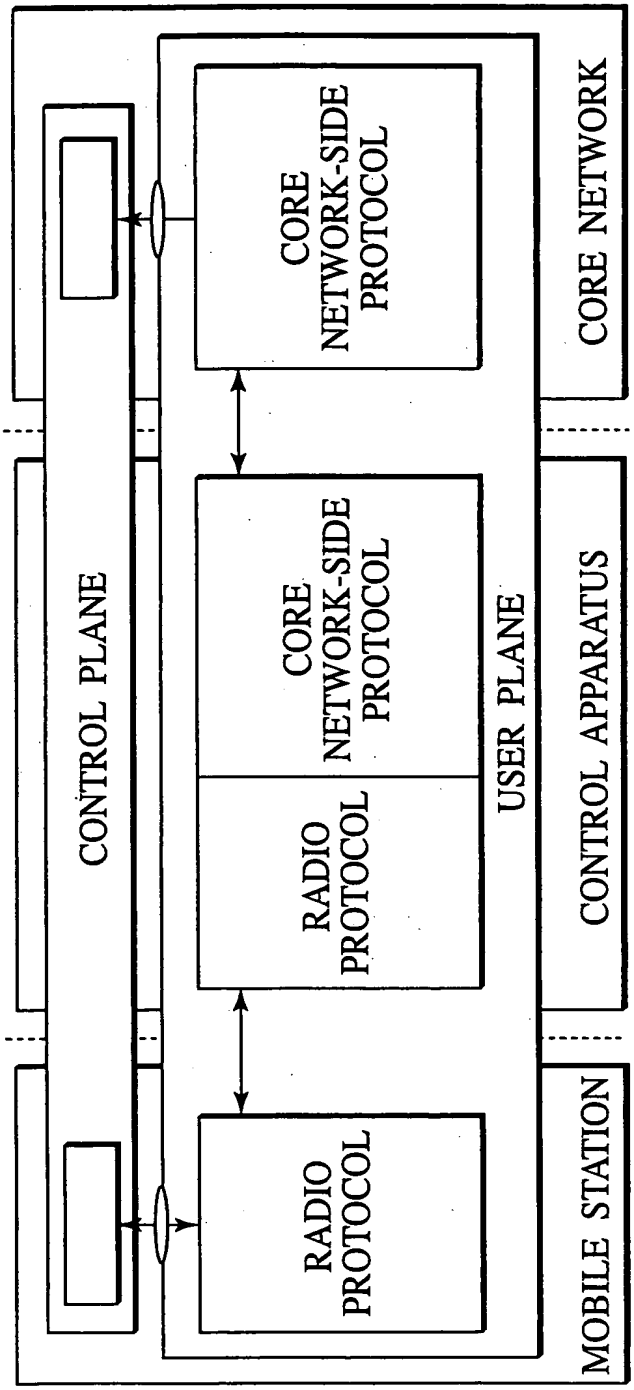

CONTROL PLANE
USER PLANE
CORE NETWORK
CONTROL APPARATUS
MOBILE STATION
CORE NETWORK-SIDE PROTOCOL
CORE NETWORK-SIDE PROTOCOL
RADIO PROTOCOL
RADIO PROTOCOL

FIG.1B

FIG.2

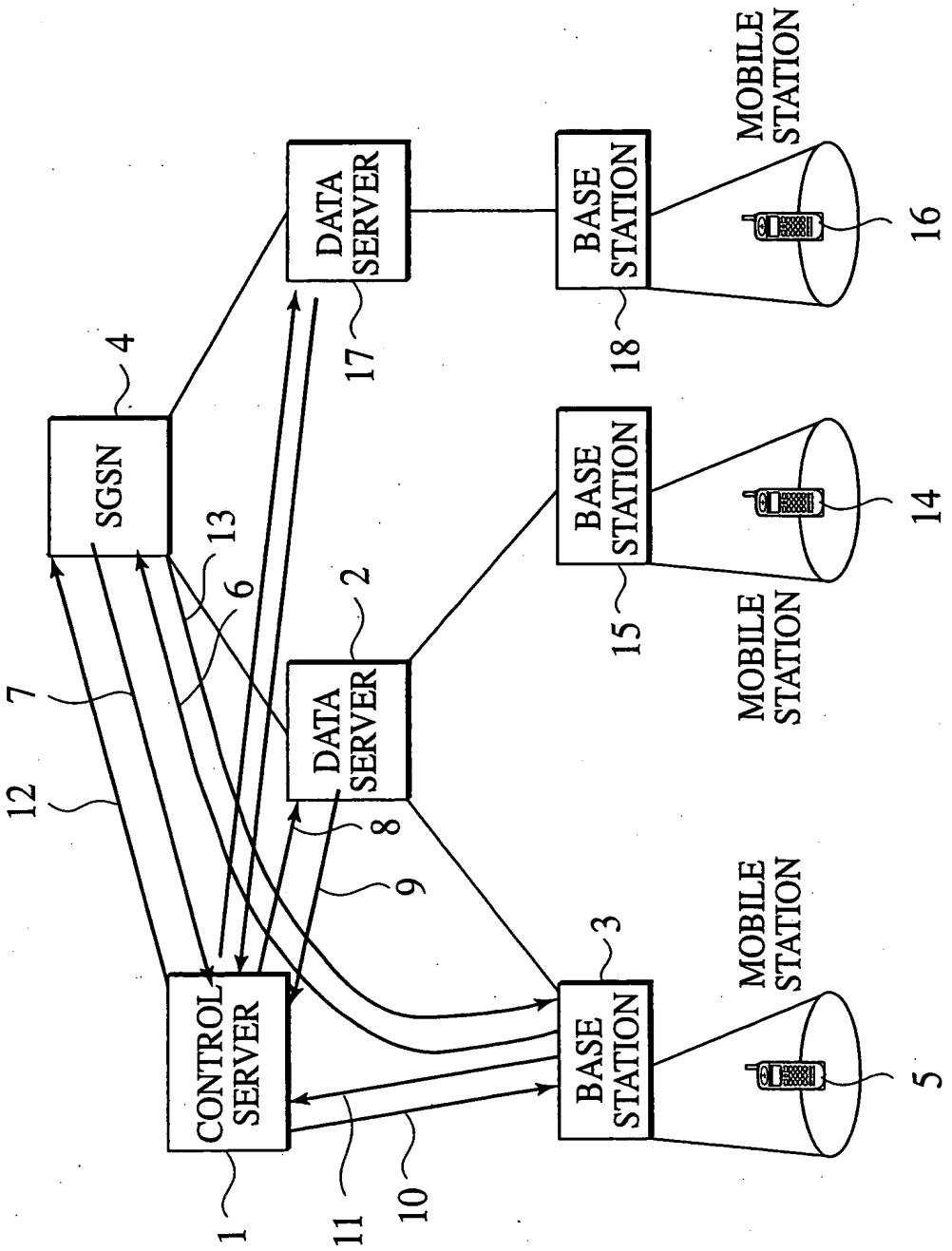

CONTROL SERVER
SGSN
DATA SERVER
DATA SERVER
BASE STATION
BASE STATION
BASE STATION
MOBILE STATION
MOBILE STATION
MOBILE STATION
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

FIG.3

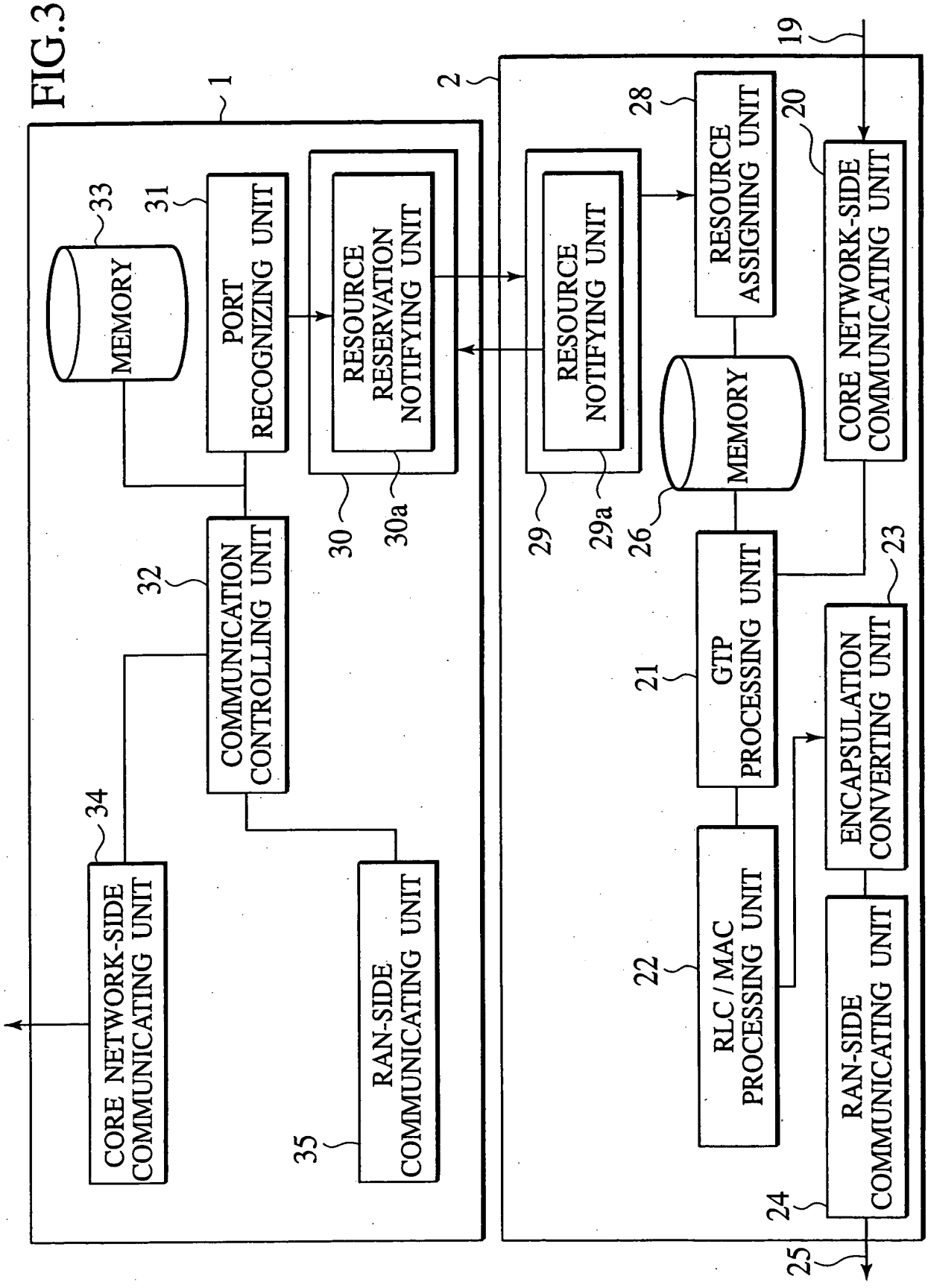

1
2
19
33
31
MEMORY
PORT RECOGNIZING UNIT
RESOURCE RESERVATION NOTIFYING UNIT
RESOURCE NOTIFYING UNIT
28
RESOURCE ASSIGNING UNIT
20
CORE NETWORK-SIDE COMMUNICATING UNIT
32
COMMUNICATION CONTROLLING UNIT
30
30a
29
29a
26
MEMORY
34
CORE NETWORK-SIDE COMMUNICATING UNIT
35
RAN-SIDE COMMUNICATING UNIT
21
GTP PROCESSING UNIT
23
ENCAPSULATION CONVERTING UNIT
22
RLC / MAC PROCESSING UNIT
24
RAN-SIDE COMMUNICATING UNIT
25

FIG.4

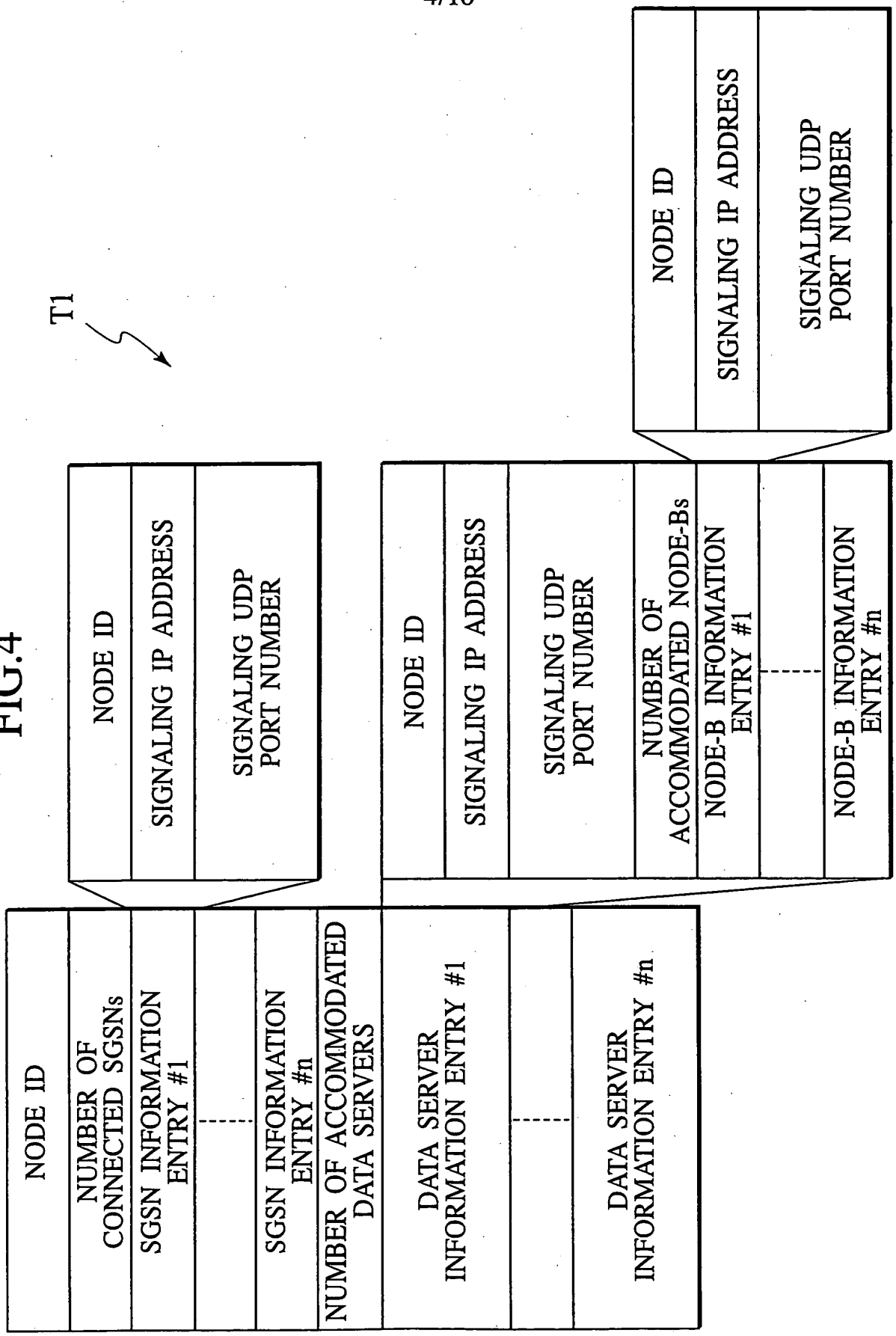

T1
NODE ID
NUMBER OF CONNECTED SGSNs
SGSN INFORMATION ENTRY #1
SGSN INFORMATION ENTRY #n
NUMBER OF ACCOMMODATED DATA SERVERS
DATA SERVER INFORMATION ENTRY #1
DATA SERVER INFORMATION ENTRY #n
NODE ID
SIGNALING IP ADDRESS
SIGNALING UDP PORT NUMBER
NODE ID
SIGNALING IP ADDRESS
SIGNALING UDP PORT NUMBER
NUMBER OF ACCOMMODATED NODE-Bs
NODE-B INFORMATION ENTRY #1
NODE-B INFORMATION ENTRY #n
NODE ID
SIGNALING IP ADDRESS
SIGNALING UDP PORT NUMBER

FIG.5

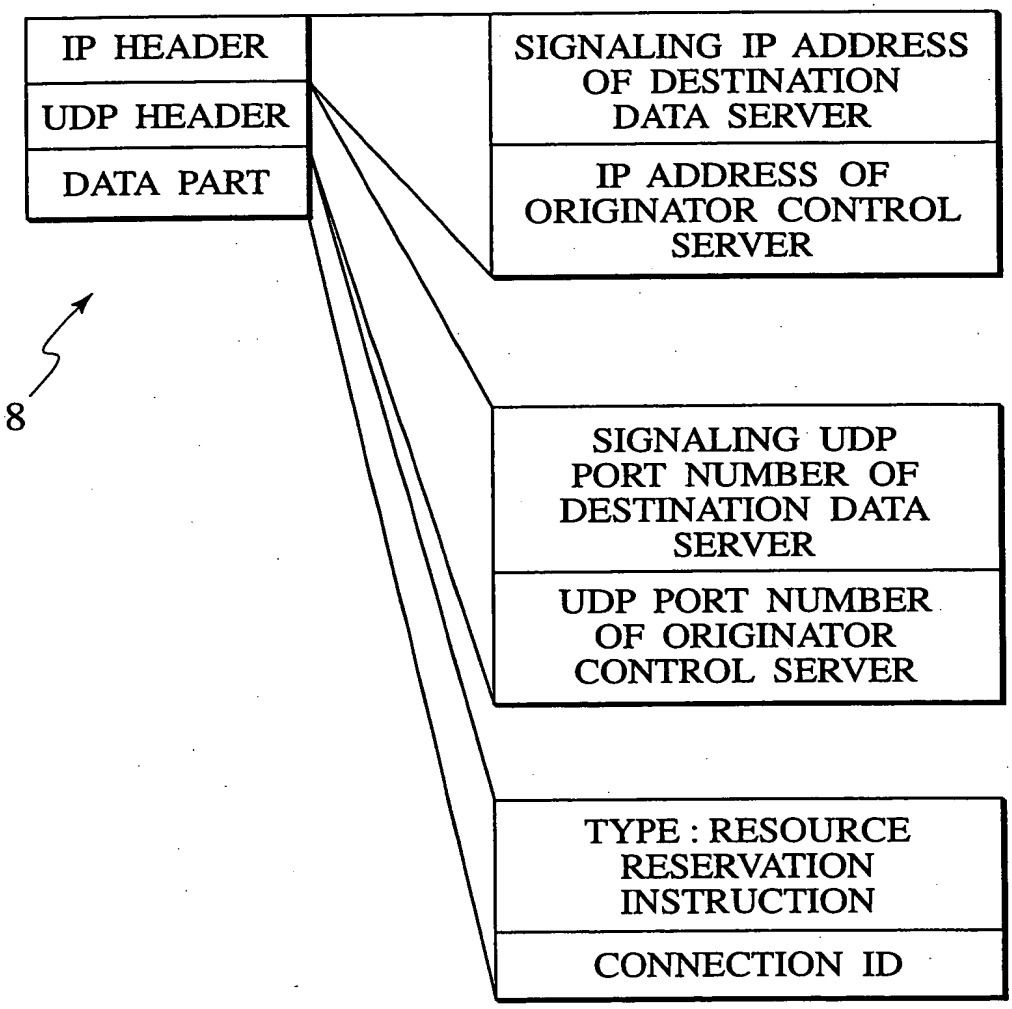

IP HEADER
UDP HEADER
DATA PART
8
SIGNALING IP ADDRESS OF DESTINATION DATA SERVER
IP ADDRESS OF ORIGINATOR CONTROL SERVER
SIGNALING UDP PORT NUMBER OF DESTINATION DATA SERVER
UDP PORT NUMBER OF ORIGINATOR CONTROL SERVER
TYPE : RESOURCE RESERVATION INSTRUCTION
CONNECTION ID

FIG.6

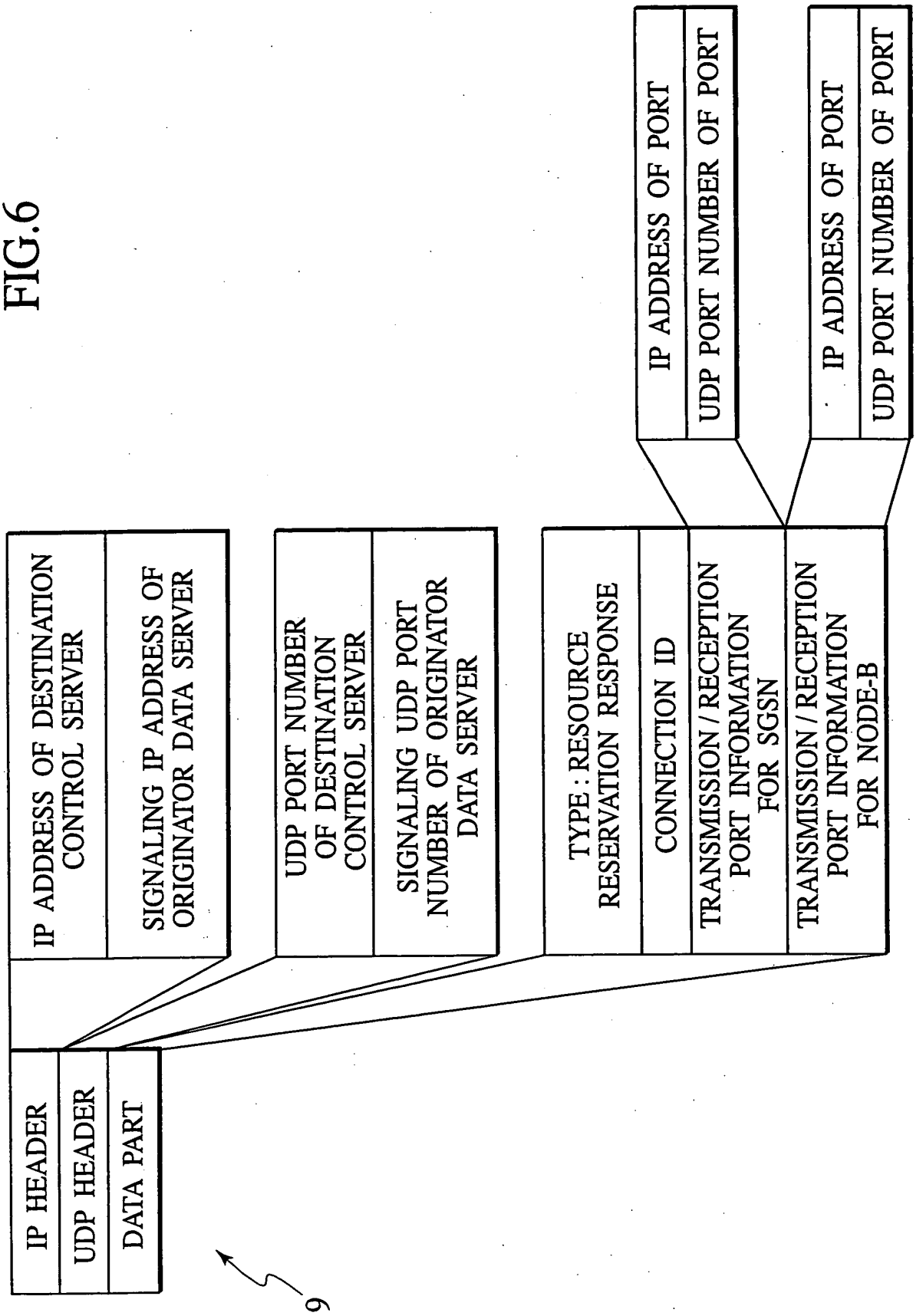

IP HEADER
UDP HEADER
DATA PART
9
IP ADDRESS OF DESTINATION CONTROL SERVER
SIGNALING IP ADDRESS OF ORIGINATOR DATA SERVER
UDP PORT NUMBER OF DESTINATION CONTROL SERVER
SIGNALING UDP PORT NUMBER OF ORIGINATOR DATA SERVER
TYPE : RESOURCE RESERVATION RESPONSE
CONNECTION ID
TRANSMISSION / RECEPTION PORT INFORMATION FOR SGSN
IP ADDRESS OF PORT
UDP PORT NUMBER OF PORT
TRANSMISSION / RECEPTION PORT INFORMATION FOR NODE-B
IP ADDRESS OF PORT
UDP PORT NUMBER OF PORT

FIG.7

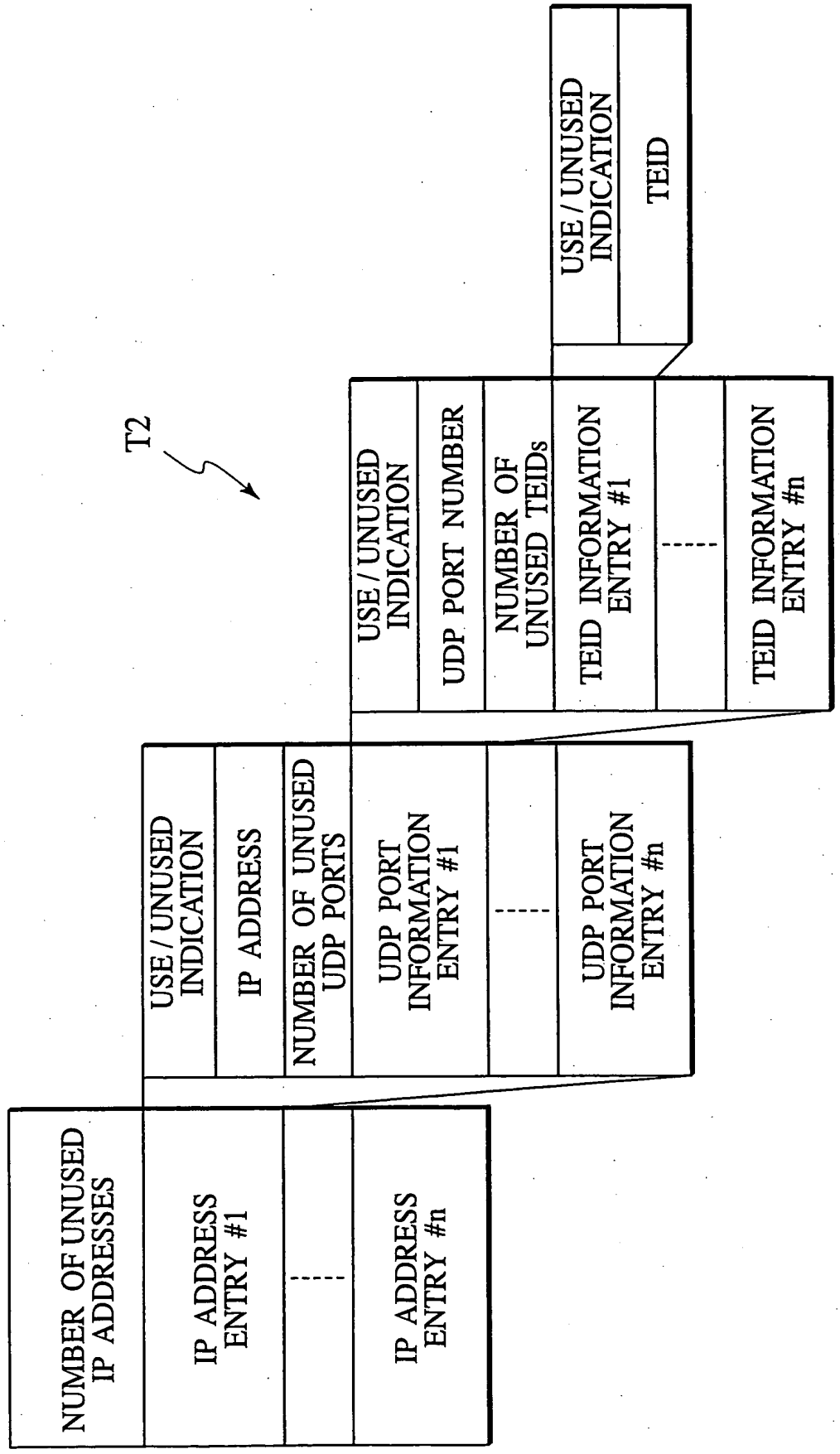

T2
NUMBER OF UNUSED IP ADDRESSES
IP ADDRESS ENTRY #1
IP ADDRESS ENTRY #n
USE / UNUSED INDICATION
IP ADDRESS
NUMBER OF UNUSED UDP PORTS
UDP PORT INFORMATION ENTRY #1
UDP PORT INFORMATION ENTRY #n
USE / UNUSED INDICATION
UDP PORT NUMBER
NUMBER OF UNUSED TEIDs
TEID INFORMATION ENTRY #1
TEID INFORMATION ENTRY #n
USE / UNUSED INDICATION
TEID

FIG.8

IP ADDRESS	UDP PORT NUMBER	TEID	CONNECTION ID
...	...	...	...
...	...	...	...

T3

FIG.9

CONNECTION ID	NODE-B-SIDE TRANSMISSION / RECEPTION PORT INFORMATION		SGSN-SIDE TRANSMISSION / RECEPTION PORT INFORMATION		
	IP ADDRESS	UDP PORT NUMBER	IP ADDRESS	UDP PORT NUMBER	TEID
...	...	...	...	...	...
...	...	...	...	...	...

T4

FIG.10

CONNECTION ID	GTP PROTOCOL INFORMATION	RLC PROTOCOL INFORMATION	MAC PROTOCOL INFORMATION
...	...	...	...
...	...	...	...

T5

FIG.11

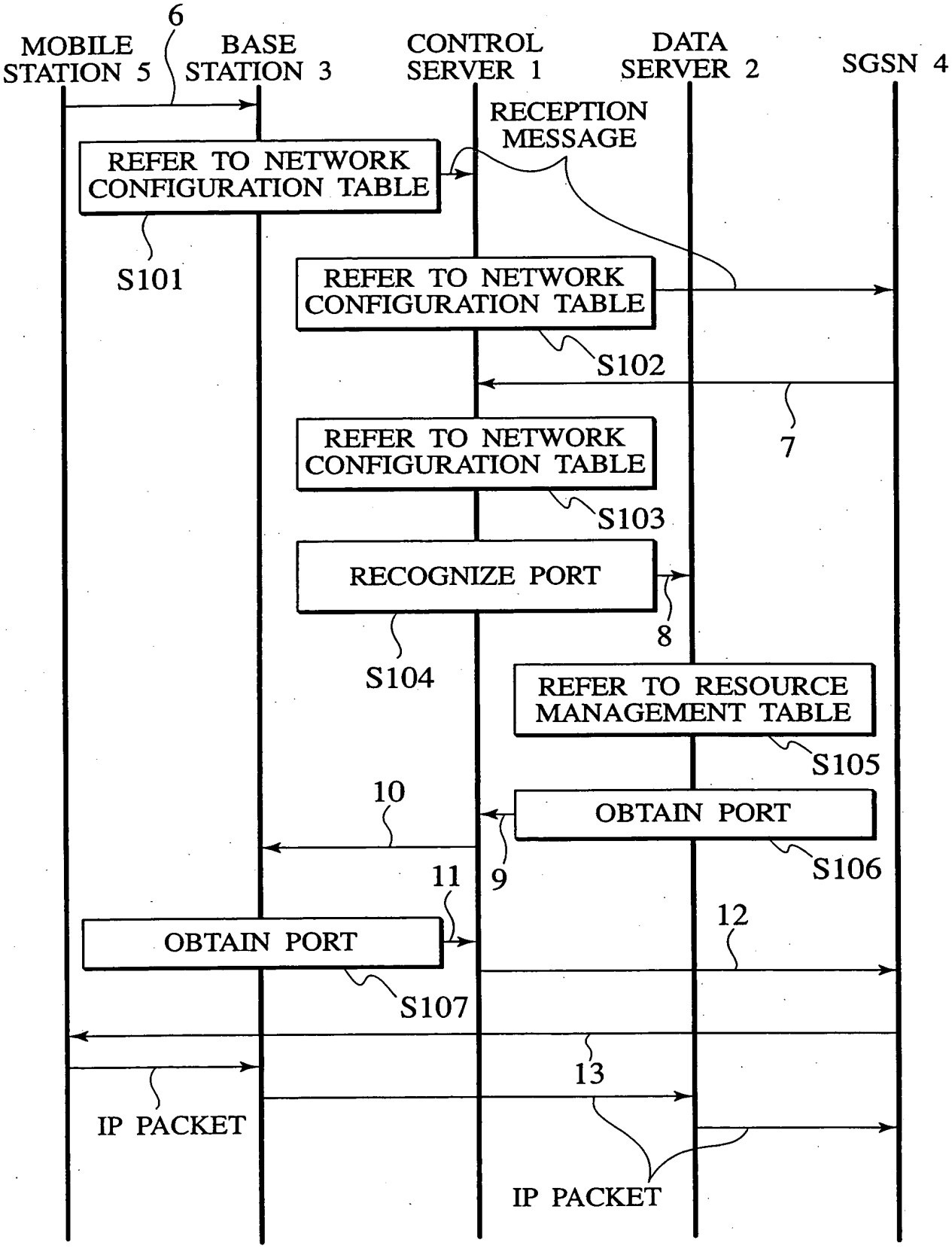
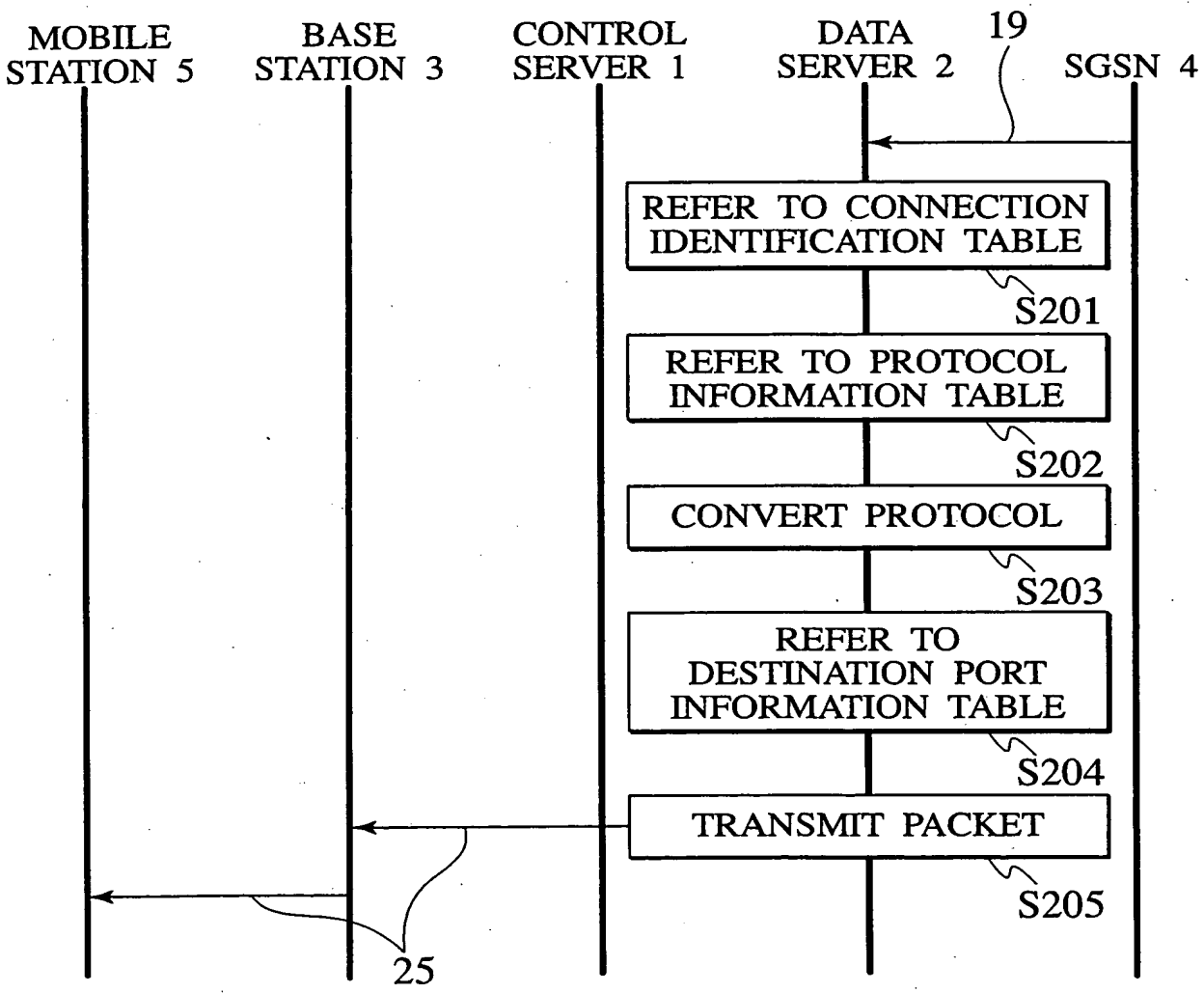

6
MOBILE STATION 5
BASE STATION 3
CONTROL SERVER 1
DATA SERVER 2
SGSN 4
RECEPTION MESSAGE
REFER TO NETWORK CONFIGURATION TABLE
S101
REFER TO NETWORK CONFIGURATION TABLE
S102
7
REFER TO NETWORK CONFIGURATION TABLE
S103
RECOGNIZE PORT
8
S104
REFER TO RESOURCE MANAGEMENT TABLE
S105
10
OBTAIN PORT
S106
11
9
12
OBTAIN PORT
S107
13
IP PACKET
IP PACKET

FIG.12


MOBILE STATION 5
BASE STATION 3
CONTROL SERVER 1
DATA SERVER 2
19
SGSN 4
REFER TO CONNECTION IDENTIFICATION TABLE
S201
REFER TO PROTOCOL INFORMATION TABLE
S202
CONVERT PROTOCOL
S203
REFER TO DESTINATION PORT INFORMATION TABLE
S204
TRANSMIT PACKET
S205
25